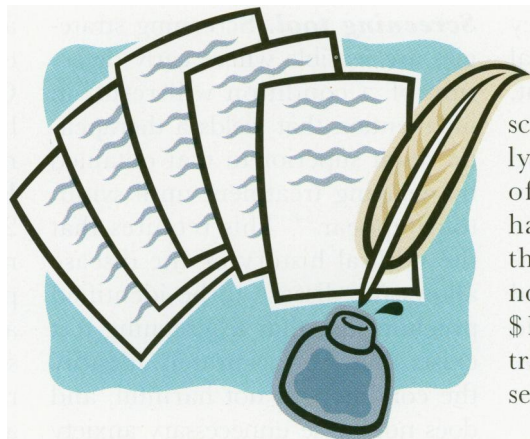


SPECIAL REPORTS

Anatomy of a practice guideline

Tradition, science, and consensus on using electrocardiograms in Saskatchewan

HEALTH SERVICES UTILIZATION AND RESEARCH COMMISSION



In February 1992, the government of Saskatchewan created the Health Services Utilization and Research Commission (HSURC). It was mandated to assess components of the health system, produce public reports, and make recommendations based on sound scientific evidence for improving the quality and efficiency of services and programs. The Commission is also the provincial granting agency for health research in general, incorporating the mandate of the former Saskatchewan Health Research Board. The HSURC has 12 members and is chaired by a Regina-based family physician. No government representatives sit as Commissioners.

The Commission selects projects on the basis of four main criteria: the topic is important (ie, an important part of the health system and its resources); improvements in efficiency and effectiveness seem necessary; the research can be done within a reasonable period (about a year for most topics); and genuine prospects for change exist. While research is its main activity, dissemination of findings to a wide, system-based audience and eventual

changes to the system are the criteria for success.

RATIONALE FOR THE STUDY

Evidence of problems with ECG use

The Commission began its study of ECGs in 1992 first because Saskatchewan's use of ECGs at 290 per 1000 patients exceeded that of Manitoba and Alberta whose rates were 239 per 1000 and 206 per 1000, respectively, during 1990-1991. No published standards indicate how many ECGs should be performed per capita in a "normal" population, but Saskatchewan's use was 80% higher than that reported in the Kaiser-Permanente Health Maintenance Organization study covering several million people in northern California. In 1991-1992 approximately 300 000 ECGs were performed on a provincial population of 1 000 000: 40% on inpatients, and 60% on outpatients and those visiting physicians' offices.

Second, some physicians and some members of the public seemed to overvalue the ECG as a diagnostic, and particularly

screening, tool. As technology widely available in both physicians' offices and hospitals, the ECG had become part of the ritual of the periodic health examination: noninvasive, quantitative, and, at \$15.70 per procedure (\$7.20 for tracing, \$8.50 for interpretation), seemingly inexpensive.

Third, the data suggested routine rather than selective ECG use. A HSURC survey confirmed that many hospitals performed ECGs routinely on patients with a variety of non-clinical characteristics (eg, age 40 and older, admission for any type of surgery).

Fourth, patterns of ECG use were inconsistent with the epidemiologic characteristics of cardiovascular disease (CVD). For instance, Saskatchewan women aged 40 to 49 received more ECGs than men (312 ECGs per 1000 women, 285 per 1000 men), despite having roughly half the mortality rate for CVD. Disproportionate use occurred among older people, with population-based rates increasing to about 500 per 1000 men and women by age 50, and rising to 1376 per 1000 men and 1114 per 1000 women older than 75 during 1990-1991. On a larger scale, national epidemiologic data showing decreases in CVD mortality rates during the past four decades also called Saskatchewan's ECG use rates into question.

Approach to the study

With sufficient evidence to proceed, the Commission established a working group to review ECG use.

The group, chaired by a Commissioner (D.K.), included a cardiologist (W.B.F.), and two family physicians (S.G., T.H.). This approach, variously termed "expert panel," "opinion leader," or "key informant" participation, is typical of practice guideline development. The working group was to review indications for ECG testing and make recommendations to the profession on the use of ECGs. The Commission placed no prior constraints on the possible findings and recommendations but emphasized that the conclusions should be demonstrably linked to the best scientific evidence available.

GUIDELINES AND SUPPORTING EVIDENCE

Guideline 1. Use of ECGs during periodic health examinations

Use of an ECG as a screening tool for asymptomatic individuals during periodic health examinations is not recommended (*Figure 1*).

An asymptomatic individual is defined as someone without symptoms, abnormal physical findings, or previous abnormal ECG results. The recommendation against screening ECGs is consistent with current authoritative guidelines issued by the Canadian Task Force on the Periodic Health Examination,¹ the United States Preventive Services Task Force,² the American College of Physicians (ACP),³ and the American College of Cardiology/American Heart Association (ACC/AHA) Task Force on Diagnostic and Therapeutic Cardiovascular Procedures.⁴

The rationale for limiting use of ECGs to individuals with signs or symptoms of CVD is based on an evaluation of the ECG as a potential screening tool, an evaluation of management implications following

ECG findings in asymptomatic patients, and an evaluation of the ECG as a baseline measure for asymptomatic patients.

Screening tool. Screening strategies are feasible where early detection of a condition will result in intervention that yields a therapeutic result superior to that obtained by delaying treatment until symptoms appear.⁵⁻⁸ This requires that the natural history of the disease allows the disease to be identified preclinically; that a screening test exists that can accurately identify the condition, is not harmful, and does not cause unnecessary anxiety to the patient; and that a treatment is available that is more effective in the preclinical stage than at a later stage. When these prerequisites are considered, use of an ECG as a screening tool becomes questionable.

Sensitivity, specificity, and positive predictive value. To be a useful screening tool, ECGs must have the capacity to detect cardiovascular disorders at a preclinical stage. The various wave forms must have the sensitivity and specificity to demonstrate clinically significant conditions. The ECG's sensitivity reflects its capacity to detect CVD when actually present, and the ECG's specificity reflects its capacity to rule out CVD when not actually present.

Various prospective studies⁹ of asymptomatic individuals suggest that Q waves, ST segment depression, T wave inversion, left ventricular hypertrophy, and ventricular arrhythmias are associated with increased risk for coronary events. However, the ECG has serious limitations as a screening test for an asymptomatic population due to its lack of sensitivity and specificity and the low

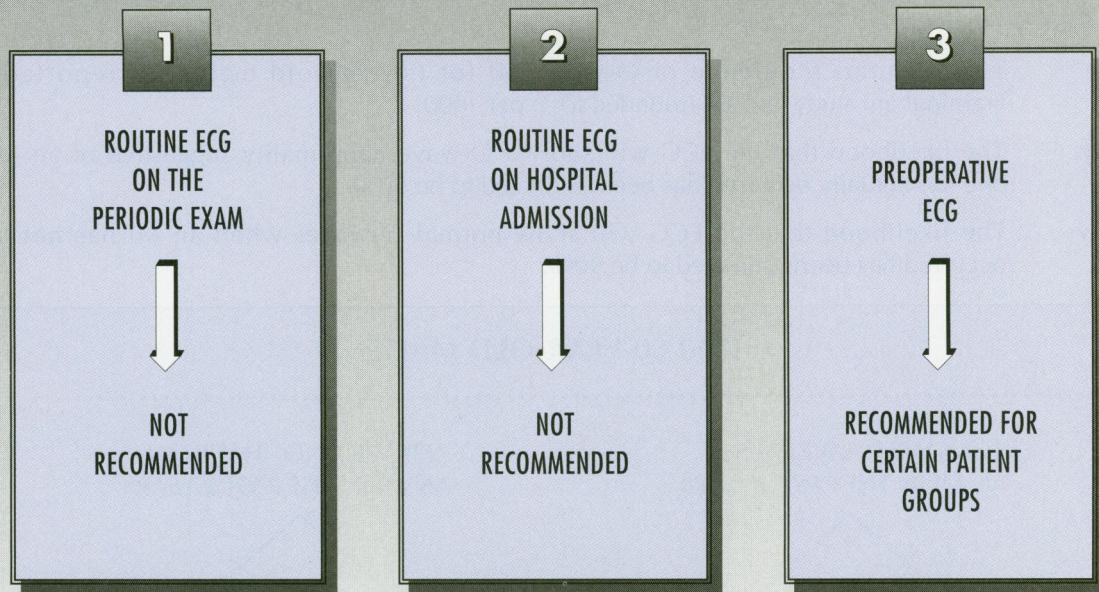
prevalence of clinically important CVD states.⁹

Available evidence indicates that the ECG's sensitivity for Q wave myocardial infarction (MI) is low for asymptomatic individuals.¹⁰ This is due, in part, to the fact that Q waves can become normal or become nondiagnostic within a few months after Q wave infarction.^{11,12} Researchers estimate that about 25% of infarctions will revert to nondiagnostic electrocardiographic patterns.¹³ Results from two large autopsy series^{14,15} indicated that the sensitivity of standard Q wave criteria for MI is 33% to 62%. Thus, although Q wave has been shown to be fairly specific (about 90% of non-MI cases accurately ruled out),¹⁶ the ECG will detect only approximately half the patients who have had silent infarctions. *Figure 2* shows the capacity of ECGs to detect MI in a group of 60-year-old men, based on the 6-month incidence rate reported in the Framingham studies.¹⁶

The ECG is also a poor indicator of preclinical coronary artery disease (CAD). Because abnormalities that appear on ECGs depend on the effects of chronic ischemia or infarction, they cannot sensitively predict the presence of lumen-constricting plaque characteristic of coronary heart disease until myocardial damage has already occurred.^{9,10} An investigator who reviewed empirical studies estimates that only 3% to 15% of asymptomatic individuals with resting ECG abnormalities develop CAD.⁹

Patients with ST segment and T wave abnormalities are more likely to develop coronary heart disease than those without these findings¹⁷ (ST segment¹⁰ and T wave changes¹⁸ have been reported to be more sensitive than Q wave changes). However, most reports indicate that such abnormalities are

Figure 1. HSURC ECG guidelines



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highly nonspecific, and most individuals showing these changes do not have, and will not develop, coronary heart disease.^{7,10} Thus, ST-T segment changes, the most common abnormalities found on ECGs, are of little prognostic value for asymptomatic people.¹⁹⁻²²

The ECG also has been shown to have poor sensitivity for left ventricular hypertrophy. Analysis of ECG use among populations with different prevalence rates of left ventricular hypertrophy²³ found an estimated sensitivity of 58% and specificity of 97% in a normal population.²⁴

The ECG has not proven capable of identifying individuals with potentially serious arrhythmias,⁷ although some propose that ECGs could help detect certain arrhythmias not easily detected on physical examination.¹⁶ The prevalence and prognosis of such "silent" arrhyth-

mias currently are unknown.¹⁶ However, life-threatening arrhythmias seldom occur in the absence of underlying cardiac disorder.⁷

Because the existing sensitivity and specificity of ECGs are low and the prevalence of clinically important CVD states low, false-positive^{9,25} and false-negative²⁶ results are likely to be obtained when the ECG is used as a screening tool for asymptomatic populations. The ECG also has poor predictive value, or poor ability to predict whether an asymptomatic individual will develop CVD.^{19-21,27,28}

Interventions for preclinical CVD. At present, the most important treatment available for CVD is risk factor reduction.^{6-8,10} Smoking, obesity, a diet high in fat, a sedentary lifestyle, and hypertension can all be identified through history and physical examination. An ECG

finding would not likely provide additional information that would have important preventive or therapeutic treatment implications.⁷⁻⁹

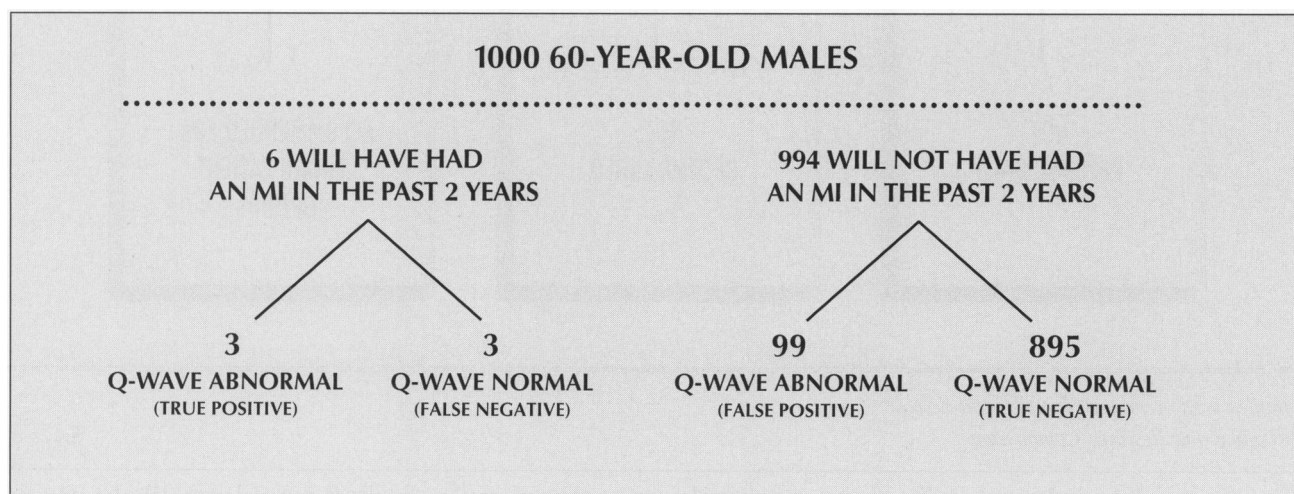
Effect on case management.

Electrocardiograms are often performed to obtain baseline tracings for patients in anticipation of future episodes of heart disease.²⁹ The baseline is thought to be of use in determining the time of an infarction when one occurs. As Sox and colleagues²² point out, this rationale requires that baseline findings be available on short notice in an emergency situation, that baseline readings be recent, and that reference to baseline readings improve diagnostic accuracy in emergency situations. Available evidence indicates that baseline ECGs, if available, are useful for managing only a few patients.^{30,31} One recent investigation³² showed that having base-

Figure 2. Electrocardiographic detection of silent myocardial infarction

The most significant ECG finding in an asymptomatic patient is evidence of a prior silent myocardial infarction (MI). The tree diagram below demonstrates the yield of the ECG for a prior Q-wave MI in a group of 1000 60-year-old males.

- Incidence** The biennial incidence of Q-wave MI for 60-year-old males, as reported in the Framingham study, is 5.64 (rounded to 5) per 1000.
- Sensitivity** The likelihood that the ECG will show a Q-wave abnormality suggestive of an MI when one has actually occurred has been estimated to be 50%.
- Specificity** The likelihood that the ECG will show normal Q-waves when an MI has **not** actually occurred has been estimated to be 90%.



Thus for every 1000 ECGs performed for 60-year-old males without MI evident on physical examination:

- ▶ The vast majority will show normal Q-wave ECG findings.
- ▶ Abnormal Q-wave ECG findings are very unlikely to be true positives.
- ▶ Half of those who have had an MI in the past 2 years will go undetected.

Due to the low sensitivity and specificity in a population with a low incidence of silent MI, the screening ECG has a poor positive predictive value for prior Q-wave MI. The positive value in a 60-year-old male is 2.9% (see table below). **Thus there are 3 chances in 100 that an abnormal finding will represent true evidence of a prior MI.**

ECG (Q-WAVE)	PATIENT AGE AND SEX					
	45-54 years		55-64 years		65-74 years	
	Male	Female	Male	Female	Male	Female
Positive predictive value	1.4%	0.4%	2.9%	1.9%	5.3%	1.9%
<i>Positive predictive value = True positives / (True positives + False positives)</i>						

line ECGs reduced inappropriate admission of elderly individuals to hospital. It would be difficult to ensure, however, that patients' baseline ECGs would remain in their current files and be available sometime in the future.⁷

Guideline 2. Use of ECGs for hospital admission

An ECG is not routinely indicated solely because of hospital admission.

Routine use of ECGs for hospital admission is not recommended for patients with no previously known or suspected CVD and no increased risk of CVD. Patients admitted to intensive care units and emergency departments are exempted from this guideline because of the severity of illness and potential for cardiac complications.

For asymptomatic individuals, an admission ECG will rarely yield clinically significant results. One study of a large tertiary care centre³⁰ indicated that an ECG was useful for fewer than 1% of asymptomatic individuals. Thus ECGs should be ordered only on the basis of symptoms, abnormal physical findings, or previous abnormal ECG results.

Guideline 2 was adopted from the ACP guidelines³ and is consistent with ACC/AHA guidelines.⁴

Guideline 3. Use of preoperative ECGs

Preoperative ECGs are indicated only for certain patient groups. Characteristics of patients and types of procedures where ECGs might provide important information include, but are not limited to:

- patients having cardiac surgery; neurosurgery; intrathoracic, intraperitoneal, aortic, or orthopedic surgery; or emergency surgery under general or regional anesthesia;
- patients with cardiac signs or symptoms (eg, those with a history

or physical findings suggesting clinically important heart disease, including arrhythmias);

- patients with family history of premature or sudden death due to cardiac events;
- patients with systemic diseases or other conditions that could be associated with clinically important but previously unrecognized cardiac abnormalities; and
- patients using or about to use noncardiac medications that

Using ECGs for screening for CVD

The ECG has great limitations as a screening tool for asymptomatic individuals. The prevalence of CVD is low in this population, and the probability of obtaining false-positive and false-negative results is high.

The only effective treatment for early CVD is reduction of risk factors identified through physical examination and history.

A baseline recording is unlikely to be available when required and is unlikely to improve diagnostic accuracy.

could cause potentially serious cardiac toxicity or that might be associated with important ECG alterations (ie, phenothiazines, tricyclic antidepressants, and doxorubicin and related drugs).

Guidelines for preoperative use of resting ECGs have been issued by the ACP³³ and the ACC/AHA.⁴ The HSURC preoperative guidelines are largely consistent with these guidelines, except for the age criterion for asymptomatic individuals.

Abnormal ECG findings and perioperative risk. The ECG

finding most clearly associated with perioperative cardiac complications is a recent (within the preceding 6 months) Q wave MI.^{16,34,35} Frequent premature ventricular contractions, or rhythms, other than sinus and premature atrial contractions on a previous ECG, also have been independently associated with postoperative cardiac morbidity.^{34,36}

An ECG might help detect arrhythmias not readily found on physical examination, such as non-paroxysmal junctional tachycardia.¹⁶ However, the significance of "silent" arrhythmias in relation to operative risk is unknown. Other ECG findings are not reliable predictors of perioperative cardiac morbidity (eg, ST-T changes might be common in patients with later complications, but they are not sufficiently predictive to warrant delay or cancellation of surgery).^{34,37}

Increased risk. Preoperative ECGs are recommended for patients with conditions, or at risk for conditions, associated with clinically important CVD. Systemic diseases and conditions thought to affect cardiovascular health include hypertension, diabetes mellitus, peripheral vascular disease, certain malignancies, (eg, lung and metastatic carcinoma), collagen vascular disease, electrolyte abnormalities,¹⁶ pulmonary disease, muscular dystrophy, sarcoidosis, amyloidosis, drug abuse, chest trauma, anorexia nervosa, and dysmorphic syndromes.⁴ However, further research is needed to confirm the importance of some of these conditions and to decide whether an ECG will assist in patient management.^{16,35}

Preoperative ECGs might be useful for identifying pattern changes associated with cardiac-intensive surgical procedures, including intrathoracic, intraperitoneal, aortic,

and emergency surgeries^{34,36}; orthopedic surgery^{35,38}; and neurosurgery.³⁹ The ECG also might benefit those taking or about to take pharmacologic agents that could cause cardiac toxicity, such as psychotropic agents, tricyclic and tetracyclic antidepressants, and lithium; anti-infective agents; antihypertensive agents; antineoplastic agents; anti-heart failure agents; and chemotherapy.⁴

Age as an independent predictor of cardiac morbidity.

Preoperative ECGs are often used to screen older asymptomatic individuals. The ACP³³ reports that preoperative ECGs might be useful for asymptomatic men older than 35 years and for postmenopausal women. The ACC/AHA⁴ guidelines recommend asymptomatic individuals older than 40 years have an ECG before surgery. Recommended age cutoffs (as low as 30,⁴⁰ as high as 60⁴¹) have been largely based on the prevalence of heart disease (eg, Framingham incidence rates of Q wave MI, prevalence of CAD),^{4,33} prevalence of ECG abnormalities,^{4,41,42} or the prevalence of perioperative complications.⁴⁰ These recommendations persist despite recognition of the ECG's poor positive predictive value in an asymptomatic population. As Goldberger and O'Konski¹⁶ state, "The age criteria suggested [ie, men older than 40 years and women older than 50 years] are necessarily arbitrary, and arguments could be made to adjust the age cutoffs at higher or lower levels...."¹⁶

Few studies discuss follow up of abnormal results.⁴³ Current evidence suggests that many abnormal results on screening ECGs are ignored, and that operative course is altered on the basis of history and physical examination,⁴² but rarely on the basis of ECG findings.^{41,43,44}

In the seminal study of operative risk factors by Goldman and colleagues,³⁴ age older than 70 was significantly correlated with postoperative MI and cardiac death. Carliner and colleagues³⁷ also reported that cardiac morbidity and mortality were much higher for patients older than 70 (38%) than for those

Using ECGs preoperatively

Preoperative ECGs could provide important information for patients at increased risk of perioperative cardiac complications. This includes patients with certain physiologic characteristics, patients undergoing cardiac-intensive procedures, and patients prescribed certain pharmacologic agents.

Preoperative ECGs are inadequate screening tools for asymptomatic individuals and are of little assistance in guiding decisions regarding the course of surgery.

Evidence to suggest that age is an independent risk factor for perioperative cardiac morbidity is weak, and the risk of false-positive results is high, even among older asymptomatic patients.

The yield of a baseline preoperative ECG for asymptomatic individuals is very low and has not been shown to improve subsequent diagnostic accuracy.

40 to 49 (7%). Similarly, Driscoll and colleagues⁴⁵ reported the incidence of postoperative MI to be 4.5% among patients 50 years and older and 2.4% for all patients. Other investigators, however, have demonstrated that age alone is not a risk factor for perioperative mortality.⁴⁶⁻⁴⁸ They contend that physiologic status is more important

than age when assessing operative risk for the elderly.^{46,49}

We recommend that preoperative ECGs be performed only after careful evaluation of asymptomatic older adults. Clinicians should bear in mind that even healthy-appearing or young-looking adults can have serious physiologic abnormalities.⁴⁶ Patients older than 65 could warrant extra caution. A high likelihood of false-positive results remains even for these patients, however, because the incidence of unrecognized Q-wave MI within the preceding 6 months for even the group at highest risk (men older than 75) is quite low (less than 0.5%).¹⁶

Baseline for asymptomatic individuals.

A second rationale for preoperative ECGs is that it can provide baseline information for evaluating intraoperative and postoperative complications.⁵¹⁻⁵³ Abnormal results on a screening ECG could affect whether or not surgery is carried out as planned; a baseline test is used for intraoperative and postoperative patient management.

No evidence confirms that routine preoperative ECGs of asymptomatic patients is useful solely as a baseline for comparison.¹⁶ One study of routine baseline ECGs of adults older than 65 years⁵³ showed that most new postoperative abnormalities were transient alterations in T and ST waves, and that their clinical significance was unconfirmed (30% of patients showed new abnormalities). Furthermore, the difficulty of timing events, such as the Q wave MI, was not discussed, nor was it indicated how essential preoperative tracings were for interpreting new findings. A study of using ECGs when a previous tracing existed⁴¹ showed that 123 of 503 (25%) patients had new findings. However, the changes

were relevant to cardiac function for only 24 of the 503 (5%). Thus, based on available data, the HSURC estimates that the yield for baseline ECGs would be too low in an asymptomatic population to warrant its use.

DISCUSSION AND FURTHER ISSUES

Radicalism and conservatism in the Saskatchewan guidelines

The Saskatchewan guidelines are generally consistent with those developed in other jurisdictions with the notable exception of Guideline 3, which counsels against age-based ECG procedures for asymptomatic individuals awaiting surgery.

The Commission is convinced that its guidelines must be based on scientific evidence where available, or on sound reasoning in the absence of science. Not only is the scientific case for age-based screening absent, but the scientific evidence against age-based criteria is, in our view, persuasive. For asymptomatic patients, an ECG is a poor test to apply in the absence of clinical indicators because of its relatively poor sensitivity and specificity. Reported evidence indicates perioperative decisions are rarely based on ECG findings. Further, the surgical and anesthetic literature reported advances in procedures and postoperative care that have reduced overall operative risk, even among the elderly.³⁵

Recognizing that abandoning age-based criteria altogether is a large leap for many physicians and institutions, the working group included a fall-back position of raising the age cutoff to 65 in the guidelines. This partly pragmatic compromise reflects evidence indicating that, if the ECG is at all valuable for asymptomatic patients

undergoing noncardiac surgery, it is for those older than 65 or 70.^{54,55} Some argue that it might be premature to abandon more conservative age criteria because an ECG might provide important baseline information for those older than 40.⁵⁶ However, as identified above, the literature shows that cases of unexpected cardiovascular morbidity where ECGs would prove useful are very rare (ie, 1% to 5%^{41,54,55} of surgical patients), and the information has not been demonstrated essential for a positive health outcome.⁵⁵ This underscores the HSURC's pragmatic emphasis on the justification of diagnostic testing only where the information actually has an effect on patient management and health outcomes.

Studies have reported that little good clinical evidence supports guidelines or provides solid justification for everyday medical practices.^{57,58} For example, we list admission for neurosurgery as an indicator for a preoperative ECG, consistent with other guidelines, even though only one study reports increased risk of adverse cardiac outcome.³⁹ It might be entirely reasonable to accept the conclusions of others in areas where evidence is weak. The widely held (and in the United States often legally prudent) presumption in North American medical practice that "when in doubt, do" is often a better approach than "when in doubt, do not" creates an asymmetrical standard of evidence, placing a greater burden of proof on those who counsel against a procedure.

Guidelines in the broader context

Implicit in the debate about guidelines is the context in which they are developed. It is one thing to examine a procedure or technology on its own terms sequestered from competing interventions and another to

put it under the scrutiny of comparative analysis.

There is growing interest in applying utility theory to decision making, particularly in an era of restraint. An identical understanding of the technical characteristics of a test could result in very different recommendations from different people about its value to the health system and the population. Such analyses might conclude that some technologies are both useful and valuable, but not useful and valuable enough to adopt on a large scale compared with other interventions.

Epidemiologic data and medical practice

An important question, unresolved by our guidelines, is the extent to which changing epidemiologic patterns should influence medical practice along with advances in technology and improved intervention alternatives. Can and should we expect the age and sex distribution of ECGs to be proportional to the age and sex distribution of CVD risk? Should guidelines incorporate relative risk ratios and recommend that testing propensities conform to these findings?

Guidelines are chiefly targeted toward individual practitioners, although they frequently concern institutional practices and policies. Population-based epidemiologic findings might be relevant to an individual general practice roster without providing much guidance in individual clinical circumstances. In an ideal world there would be a confluence of epidemiology and practice, the achievement of which depends at least partly on yet-to-be-developed information systems.

The clinical judgment override on all guidelines is, of course, sacrosanct. If population-based science

and guidelines are to have optimal effect, practitioners must have ways to compare their own practice patterns and performance with meaningful standards.

CONCLUSION

This paper describes the origins, process, content, and related issues surrounding the Saskatchewan ECG guidelines. We sent the guidelines to every physician and hospital in the province. We must now monitor the effect on use, and devise strategies for changing practices if we do not observe large ECG volume reductions. While we did not set targets for reductions, matching Alberta utilization rates is our minimum expectation. Initial data show a 10% to 11% reduction in ECG use 5 months after the guidelines were released. This reduction translates into savings of almost \$450 000 annually at 1993 private billing charges of \$15.25 for tracing and interpretation.

While overall volume reductions are one sign of success, a comprehensive analysis would reveal whether the reductions were achieved across the board or primarily among low-risk populations (the ideal outcome), whether testing patterns better reflected known epidemiologic patterns, and whether fruitless follow up and monitoring associated with false-positive results were reduced. Volume reductions might result in undetected morbidity leading to adverse outcome, just as screening every adult annually might achieve a small reduction in CVD-related morbidity and mortality. These are targets for future research.

Our one earlier experience in guideline development (thyroid function testing) led to a 33% reduction in overall test volumes within 6 months, and increased use of the test of choice, the sensitive

thyroid-stimulating hormone test. However, thyroid testing was an "easiest case": testing patterns conflicted strongly with science and best laboratory practices; some reductions required only laboratory (rather than individual physician) compliance with common-sense practices; and testing technology had recently improved, rendering traditional patterns mostly obsolete.

The ECG has a longer and stronger hold on medical practice, and the public are more likely to be aware of CVD risks and ECG procedure. Electrocardiograms are prominent elements in the periodic health examination, and heart disease and associated interventions are covered extensively in the popular media. There are no "wrong" ECG test sequences or obsolete technologies. Excessive testing is not burdensome, nor is it analogous to ordering three thyroid tests simultaneously where one would suffice in many circumstances.

Considerable medical literature suggests that publishing guidelines alone does not generally alter physician behaviour.⁵⁹ However, a shrinking health system budget might create a more fertile environment for change, particularly in a relatively small jurisdiction where opinion leaders and expert panels are likely to be known personally to many in the target audience. The potential benefit is a more effective use of resources with greater concordance of medical evidence, health and morbidity patterns, and everyday medical practice. ■

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Guidelines for managing chronic non-malignant pain

Opioids and other agents

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Although not uniformly applied in practice, the tenets guiding the treatment of patients with cancer pain are well established.¹ Chronic pain caused by conditions other than cancer, frequently termed "chronic non-malignant pain," can be as severe as cancer pain.

Management principles, including how and when to use strong opioids, are less clearly defined for pain caused by conditions other than cancer. More education is needed about techniques of patient assessment and principles of chronic pain diagnosis, about treatments available for chronic

pain management, and about establishing reasonable treatment goals to manage chronic non-malignant pain. Many physicians see the use of opioids for chronic pain as controversial. Physician fear of iatrogenic addiction, fear of inducing tolerance, perceived risk of penalties by regulatory agencies, and unfamiliarity with selection and dosing of opioids in the setting of chronic non-malignant pain limit consideration of opioid use.

This article outlines the spectrum of problems encountered in assessing and managing patients with chronic non-malignant pain (with some emphasis on how regulatory bodies influence the medical use of opioids) and presents *Guidelines for Management of Chronic Non-malignant Pain*, recently published by the College of Physicians and Surgeons of Alberta.² We write this article to stimulate discussion at the level of provincial Colleges of Physicians and Surgeons and among physicians who care for patients with chronic pain.

Opioids for chronic non-malignant pain

Methods of patient assessment and establishment of treatment goals for chronic non-malignant pain have been well described in the standard textbooks of pain management. However, the role of strong opioid medications in the management of chronic non-malignant pain is less well-defined. In Canada, published advice on their use is sparse. Guidelines from the Quebec College go so far as to recommend that physicians who administer opioids to chronic non-malignant pain patients for more than 8 weeks "... secure another physician's opinion before continuing such therapy."³ Legislation criminalizing physician prescribing that willingly facilitates prescription medication